State of California
AIR RESOURCES BOARD

Staff Report: Initial Statement
of Reasons for Proposed Rulemaking

PUBLIC HEARING TO CONSIDER A DELAY IN THE IMPLEMENTATION DATE OF THE UTILITY AND LAWN AND GARDEN ENGINE EMISSION REGULATIONS

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I. INTRODUCTION

The California Clean Air Act of 1988 (CCAA), as codified in Health and Safety Code Sections 43013 and 43018, requires that the Air Resources Board ("ARB" or "Board") consider the adoption of emission control regulations for utility equipment. (As used herein, the term utility refers both to utility engines and equipment and to lawn and garden engines and equipment.)

In December, 1990, the Board approved emission control regulations for utility equipment engines. However, in November, 1990, after publication of the utility equipment proposal, but prior to the public hearing, the Clean Air Act Amendments (CAA) of 1990 were enacted. Section 209 (e)(1) of the CAA established a federal preemption prohibiting any state or political subdivision thereof from regulating emissions from new construction or farm equipment less than 175 horsepower. Some of the utility equipment covered by ARB's regulations are arguably subject to this federal preemption. Section 209 (e)(2) of the CAA provides that California may adopt standards and other requirements for off-road engines used in vehicles and equipment that are not otherwise preempted by section 209(e)(1). However, prior to such standards and other regulations becoming enforceable, California must receive authorization from the Environmental Protection Agency (EPA). To date, EPA has not promulgated final rules defining the scope of the farm and construction preemption and, as a consequence, has not issued a final decision on California's request for authorization, which was submitted to EPA on December 27, 1990.

Without a final rule defining the scope of the preemption and without express authorization from EPA delineating California's authority to regulate engines that may arguably be used in new farm and construction equipment and vehicles under 175 horsepower, industry has been left uncertain as to how the preemption of state authority would affect the utility engine regulations. In August 1992, the Portable Power Equipment Manufacturers Association (PPEMA) petitioned the Board to hold a public

hearing to consider delaying the January 1, 1994 implementation date, set forth in Title 13, California Code of Regulations (CCR), section 2400 et seq., one year to January 1, 1995. Additionally, since the Board approved the utility engine regulations, PPEMA and several manufacturers have expressed doubt about their ability to meet the January 1, 1994 implementation date with all models. Furthermore, without approval of the waiver, and without a firm knowledge of which equipment types would be preempted, effective allocation of engineering resources was virtually impossible. The Executive Officer of the ARB approved the petition in a decision dated December 18, 1992.

Therefore, the staff has prepared a proposal to delay the implementation of the 1994 utility engine regulations by one year, until January 1, 1995. The staff's proposal also includes a delay of implementation of the quality audit provisions from January 1, 1995 to January 1, 1996.

II. BACKGROUND

A brief summary of the information upon which adoption of the utility equipment emission control regulations was based is presented below.

A. UTILITY EQUIPMENT FLEET

The utility equipment category includes a variety of equipment which use engines 25 horsepower or less. In the category are handheld equipment such as chainsaws and blowers, and non-handheld equipment such as lawnmowers, garden tractors and portable generator sets. The same engine models may be used in multiple applications. Table 1 below lists some of the equipment included in the utility category.

Table 1.

Utility and Lawn and Garden Equipment

Non-Handheld	Handheld
Walk Behind Mowers	Chainsaws
Riding Mowers	String Trimmers
Compressors	Edge Trimmers
Portable Refrigeration Units	Blowers
Pumps	
Generators	

B. UTILITY AND LAWN AND GARDEN EQUIPMENT EMISSIONS INVENTORY

Table 2 compares the 1987 baseline utility equipment inventory with the total off-road equipment inventory. Utility equipment are significant contributors of hydrocarbons (HC) and carbon monoxide (CO) emissions. In

1987, utility engines contributed 41 percent of all off-road equipment HC emissions.

Table 2.

Mobile Off-Road Equipment Emission Inventory - 1987 (Statewide)

Category	Tons per Day			
	HC	CO	NOx	PM
Off-Road Equipment	170	3120	672	37
Utility Equipment	70	495	2	1.1
Utility Equipment (Percent of Total)	41	16	0	3

At the time the Board approved the the regulations, the staff estimated that the standards would result in substantial reductions in HC and CO emissions by 2010. Table 3, below, compares the projected uncontrolled 2010 utility equipment emission inventory to the inventory that would exist if the regulations covered all utility equipment, in the absence of the preemption.

Table 3.

Utility Equipment Emission Inventories - 2010 Statewide

Category	Tons per Day			
	HC	CO	NOx	PM
Uncontrolled	70	495	2	1.1
Controlled as per 1990 Regulations (No preemption)	12	120	2	0

C. UTILITY AND LAWN AND GARDEN EQUIPMENT STANDARDS AND REGULATIONS

The adopted regulations establish emission standards and emission enforcement programs for utility equipment engines. The first tier engine standards, shown in Table 4, are designed to provide feasible, short-term reductions in utility engine emissions. These standards are expected to be met through carburetor adjustments and tighter design tolerances. The second tier standards, also shown in Table 4, will provide greater reductions achievable in the long-term through use of advanced control technologies, such as catalytic converters.

Table 4.

Exhaust Emission Standards
(grams per brake horsepower-hour)

Calendar Year	Engine Class	Hydro-carbon	Oxides of nitrogen	Carbon monoxide	Particulate
1994 to 1998 (Tier I)	< 225 cc	-- 12.0 Total --		300	0.9[1]
	≥ 225 cc	-- 10.0 Total --		300	0.9
	Handheld[2]				
	< 20 cc	220	4.0	600	-
	20 - 50 cc	180	4.0	600	-
	≥ 50 cc	120	4.0	300	-
1999 and subsequent (Tier II)		-- 3.2 Total --		100	0.25[3]
	Handheld	50	4.0	130	0.25

In addition to the above emission standards, the 1990 Board action included requirements for engine labeling, an emission defects warranty, quality audit testing, and new engine compliance testing programs.

III. SUMMARY OF RECOMMENDED ACTION

The first tier of standards and requirements for utility equipment is currently scheduled to be implemented on January 1, 1994. The staff proposes to delay implementation of the first tier standards until

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1. Applicable to diesel engines only.

2. Handheld standards may be used for two-stroke snow throwers, and for engines that meet the following requirements:

   i) The engine must be used in a handheld piece of equipment. To be classified as a handheld piece of equipment, performance of the equipment's requisite function must require that the operator support the equipment's full weight.

   ii) The engine and equipment must require the capability of operating in any position to properly perform its design function.

3. Applicable to all diesel and all two-stroke engines only.

January 1, 1995. The staff proposes no change to the date of initial implementation of the second tier of standards, scheduled for implementation in 1999. The staff further proposes to delay implementation of the quality audit requirements as set forth in section 2407 of Title 13, CCR, from 1995 to 1996, in order to continue to provide manufacturers one year of lead time to complete their initial certification and production prior to the initiation of quality audit testing. The proposed changes are set forth in Attachment A.

IV. DISCUSSION

The CAA, as amended, limits California's authority to regulate off-road mobile sources. Section 209(e)(1) establishes a federal preemption prohibiting states from regulating new engines under 175 horsepower used in farm and construction vehicles and equipment. Although under section 209(e)(2), California may regulate off-road engines not otherwise preempted, it must request and receive authorization from EPA.

On December 14, 1990, the Board approved for adoption regulations establishing emission standards and enforcement provisions for utility engines. On December 27, 1990, the ARB submitted an authorization request to EPA regarding the subject regulations. EPA subsequently determined that before it could make a determination on the request, it would be necessary to promulgate federal rules defining the scope of the preemption for new farm and construction vehicles and equipment, and a test for how such definitions would be applied. Although EPA held a public hearing on its proposed rules in September 1991, the rules are still pending further review and have not been promulgated. As a consequence, the ARB's request for authorization also remains pending at this time.

In August 1992, PPEMA filed a petition with the ARB wherein it requested that the Board conduct a hearing to consider delaying the scheduled implementation of the California regulations one year to January 1, 1995. In its petition, PPEMA argued that because the federal rules defining the preemption and EPA's authorization have not been issued by the agency, its manufacturers are uncertain as to how the California regulations will apply to their product lines and, if so, which ones.

Although the California standards have been public since October 1990, and many manufacturers have been working to develop complying engines, the issues the PPEMA petition raises are valid not only for PPEMA members, but for other manufacturers as well. Manufacturers have been put in a quandary: to devote resources now to develop and produce complying engines that may ultimately not be subject to California regulation, or to postpone action until the preemption issues have been settled. If they choose the latter option and their engines are ultimately deemed to be subject to ARB's regulations, insufficient time will remain to develop and produce a complying product by the January 1, 1994 compliance date.

Most manufacturers have chosen to pursue development of complying engines, but not to make the investment and commitment to produce them. As a result, it is estimated that if EPA were to issue its definition of

federal preemption and issue a waiver to California as of the date of this report, nearly one half of the current utility equipment models would not be available for sale on January 1, 1994. In addition to PPEMA, the Engine Manufacturers Association (EMA) and several manufacturers have requested additional time to comply.

To remedy this situation, the staff proposes to delay the implementation of the Tier I utility engine standards for one year to January 1, 1995. Staff believes that the delay will allow full product availability in 1995. The impact on air quality is that full implementation will be delayed one year. Due to short equipment lifetimes (six years for almost full turnover) and the implementation of the Tier II standards in 1999, the impact for 2010 (as presented in the original rulemaking) will be unchanged.

The staff also proposes to maintain the one year interval between the implementation of the Tier I standards and the implementation of the quality audit testing requirements of section 2407. The additional year will allow manufacturers to become acclimated to the certification process before the imposition of another testing requirement.

V. REGULATORY ALTERNATIVES

The staff considered several alternatives to the implementation delay. However, none of these alternatives would accomplish the same goals as the proposal.

A. RELAXATION OF THE STANDARDS

A possible alternative to the implementation delay would be to lessen the stringency of the standards, but retain the 1994 implementation. The staff believes that this would still result in unavailability of many products. The federal rulemaking and the EPA authorization have still not been released and less than one year remains before the January 1, 1994 implementation date.

Some manufacturers have been working towards the already approved standards, which have been known for over two years. Less stringent standards would place those manufacturers in a position of offering cleaner equipment, but at a less competitive cost than their competition. This would penalize those manufacturers who have worked in good faith.

B. NO CHANGE TO IMPLEMENTATION OR STANDARDS

Another alternative considered and rejected by staff is not to act to modify either the standards or the implementation of those standards, because manufacturers have known about the standards for over three years prior to the scheduled 1994 implementation. However, the Board intended to exclude those equipment types that should be included in the federal preemption of construction and farm equipment. Asking manufacturers to proceed with research and development and certification of engines entitled to be preempted would result in a wasted expenditure of resources. Furthermore, the staff believes that some product types would be unavailable

in California because insufficient time remains to bring them into compliance. Since the Board approved the utility regulations with the understanding that they would not result in substantial equipment unavailability, staff rejected this alternative.

C. ALTERNATIVES THAT WOULD LESSEN ECONOMIC IMPACT ON BUSINESSES

The staff did not consider any alternative that would further lessen economic impact on businesses. The delay of implementation of the Tier I standards should benefit businesses in that it would allow more time to prepare for compliance and sale of complying engines. The specific exclusion of preempted engines, to be determined based on the forthcoming EPA regulations, will give all businesses a greater degree of certainty for allocation of resources. In all, the expected economic impacts on businesses due to this rulemaking are all positive. Because of these positive effects, no other specific alternatives to lessen the economic impact on businesses were considered.

VI. IMPACT ON ENVIRONMENT, COST-EFFECTIVENESS, AND ECONOMY OF THE STATE

A. ENVIRONMENTAL IMPACT

The proposed one year delay in the implementation date of the utility equipment regulations would theoretically delay achievement of air quality benefits that was anticipated during the first year (1994-95) of the first tier utility engine standards. The maximum impact of the delay would be a reduction in expected initial benefits of 6 tons per day (tpd) of hydrocarbons and 27 tpd of carbon monoxide. However, the staff does not believe that if the proposed amendments were not adopted (i.e., no delay) the actual emission reductions would be this great. First, as stated, EPA has not promulgated final rules defining the scope of the preemption and has, consequently, not made its determination on California's authorization request. Without EPA's authorization, the California regulation would be unenforceable under the CAA. This would of course impact the projection of emission reductions that would be achieved during the first year of implementation. Second, as has also been noted, many manufacturers are having difficulty in complying with the proposed standards because of the uncertainty that exists because the federal rules and authorization have not been promulgated. The resulting unavailability of manufacturer product lines could potentially delay the changeover to the cleaner engines since consumers would continue to use existing, higher polluting products.

Even if the maximum emission reductions were lost because of the proposed delay, such losses would be short-term and can be expected to be recouped by the year 2000. By that time, most of the 1994 equipment would have been removed from the equipment inventory through attrition. By 2010 all utility equipment would be expected to meet the second tier of utility equipment standards, and the air quality impact in 2010 as described in the initial rulemaking would not be adversely affected.

B. COST/COST-EFFECTIVENESS

Since the staff proposes that the standards approved by the Board in 1990 remain unchanged, the cost of compliance is not expected to change significantly. There should be no direct cost to any entity due to the implementation delay. The only impact will be for those manufacturers that are prepared to offer complying equipment by the original 1994 implementation date. These manufacturers may temporarily suffer a slight competitive disadvantage if they choose to offer the cleaner engines in 1994. On the other hand, they may benefit economically by marketing in advance environmentally cleaner products. Moreover, it is expected that these manufacturers will be better placed when the regulations do go into effect. They may also choose to delay introduction of the cleaner engines and continue their 1993 product lines into 1994. Staff further believes that relatively few manufacturers are prepared to offer full lines of complying products in 1994. Therefore, the adverse cost impacts of this proposed action should prove negligible.

C. IMPACT ON THE ECONOMY OF THE STATE

Staff does not envision the proposed amendments adversely impacting the economy of the state. The proposed amendments are expected to economically benefit affected industries by affording them additional time in which to comply with the previously adopted regulations. There will be no direct reporting, recordkeeping or other compliance requirements imposed by the proposed amendments. As stated above, there should be no direct cost to any entity due to the implementation delay and thus no negative impact on the economy of the state.

Attachment A

CALIFORNIA REGULATIONS FOR ~~1994~~ 1995 AND LATER UTILITY AND LAWN AND GARDEN EQUIPMENT ENGINES

Adopted: March 20, 1992
Amended:

NOTE: This document is printed in a style to indicate changes from the existing provisions. All existing language is indicated by plain type. All additions and deletions to language therein are indicated by underline and ~~strikeout~~, respectively.

Amend Title 13, California Code of Regulations, Chapter 9 Off-Road Vehicles and Engines Pollution Control Devices to read as follows:

Article 1. General Provisions

2400. Applicability.

(a)(1) This section shall be applicable to utility and lawn and garden engines produced on or after January 1, ~~1994~~ 1995.

(2) Every new utility and lawn and garden equipment engine that is manufactured for sale, sold, offered for sale, introduced or delivered for introduction into commerce, or imported into California which is subject to any of the standards prescribed in these provisions is required to be covered by an Executive Order, issued pursuant to these provisions.

(b) Each part of this chapter shall be deemed severable, and in the event that any part of this chapter is held to be invalid, the remainder of this article shall continue in full force and effect.

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code. Reference: Sections 43013, Health and Safety Code

2401. Definitions.

DEFINITIONS

(a) The definitions in Section 1900 (b), Chapter 3, Title 13 of the California Code of Regulations, shall apply with the following additions:

(1) "ARB Enforcement Officer" means any officer or employee of the Air Resources Board so designated in writing by the Executive Officer (or by his designee).

(2) "Assembly-Line Tests" are those tests or inspections which are performed on or at the end of the assembly-line.

(3) "Calendar Year" is defined as the twelve month period commencing on January 1 through December 31.

(4) "Crankcase Emissions" means airborne substances emitted into the atmosphere from any portion of the engine crankcase ventilation or lubrication system.

(5) "Emission Control System" includes any component, group of components, or engine modification which controls or causes the reduction of substances emitted from an engine.

(6) "End of Assembly-Line" is defined as that place where the final inspection test or quality-audit test is performed.

(7) "Engine Manufacturer" means the manufacturer granted certification.

(8) "Exhaust Emissions" means substances emitted into the atmosphere from any opening downstream from the exhaust port of an off-highway vehicle.

(9) "Final Calendar Quarter Production" is defined as the calendar quarter in which the production of an engine family ends.

(10) "First Calendar Quarter Production" is defined as the calendar quarter in which the production of an engine family begins.

(11) "Fuel System" means the combination of any of the following components: fuel tank, fuel pump, fuel lines, oil injection metering system, carburetor or fuel injection components, or all fuel system vents.

(12) "Gross Engine Malfunction" is defined as one yielding an emission value greater than the sum of the mean plus three (3) times the standard deviation. This definition shall apply only for determination of control limits.

(13) "Lawn and Garden and Utility Engines" or "Lawn and Garden and Utility Engines and Equipment" or "Engines" are identified as: small two-stroke and four-stroke, air-cooled, liquid-cooled, gasoline and diesel and alternate fuel powered engines under 25 horsepower. They are designed for powering lawn, garden and turf maintenance implements and timber operations equipment; for generating electricity; and for pumping fluids. They are designed to be used in, but not limited to use in, the following applications: walk-behind mowers, riding mowers/lawn tractors, garden tractors, snow blowers, edge trimmers, string trimmers, blowers, vacuums, tillers, chain saws, pumps, generators, compressors, shredders, grinders, welding machines, stumpbeaters, vibrators/finishers, portable saw mills and refrigeration units, and other miscellaneous applications. All engines and equipment that fall within the scope of the preemption of Section 209(e)(1)(A) of the Federal Clean Air Act, as amended, and as defined by regulation of the Environmental Protection Agency, are specifically not included within this category.

(14) "Off-Road Vehicle " means any non-stationary device, powered by an internal combustion engine or motor, used primarily off the highways to propel, move, or draw persons or property including any device propelled, moved, or drawn exclusively by human power, and used in any of the following applications: Marine Vessels, Construction/Farm Equipment, Locomotives, Utility and Lawn and Garden Equipment, Off-Road Motorcycles, and Off-Highway Vehicles.

(15) "Quality-Audit Test" is defined as the test performed on a sample of production engines produced for sale in California.

(16) "Scheduled Maintenance" means any adjustment, repair, removal, disassembly, cleaning, or replacement of components or systems required by the manufacturer which is performed on a periodic basis to prevent part failure or equipment or engine malfunction, or anticipated as necessary to correct an overt indication of malfunction or failure for which periodic maintenance is not appropriate.

(17) "Ultimate Purchaser" means the first person who in good faith purchases a new engine or equipment for purposes other than resale.

(18) "Unscheduled Maintenance" means any inspection, adjustment, repair, removal, disassembly, cleaning, or replacement of components or systems which is performed to correct or diagnose a part failure which was not anticipated.

(19) "Warrantable Condition" means any condition of an engine which triggers the responsibility of the manufacturer to take corrective action pursuant to Section 2405.

(20) "Warranted Part" means any emissions-related part installed on a engine by the equipment or engine manufacturer, or installed in a warranty repair, which is listed on the warranty parts list.

(21) "Warranty period" means the period of time that the engine or part is covered by the warranty provisions.

(22) "Warranty station" means a service facility authorized by the equipment or engine manufacturer to perform warranty repairs. This shall include all manufacturer distribution centers which are franchised to service the subject equipment or engines.

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code. Reference: Sections 43013, Health and Safety Code

2402. Test Procedures.

Test procedures referred to in this chapter may be obtained from the State Air Resources Board at 9528 Telstar Avenue, El Monte, California 91731

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code. Reference: Sections 43013, Health and Safety Code

Article 2. Approval of Utility and Lawn and Garden Equipment Engine Pollution Control Devices.

2403. Exhaust Emission Standards and Test Procedures - Utility and Lawn and Garden Equipment Engines.

(a) This section shall be applicable to utility and lawn and garden engines produced on or after January 1, ~~1994~~ 1995.

(b) Exhaust emissions from new utility and lawn and garden equipment engines, sold in this state, shall not exceed:

Exhaust Emission Standards
(grams per brake horsepower-hour)

Calendar Year	Engine Class (1)	Hydrocarbon plus oxides of nitrogen	Hydrocarbon	Carbon monoxide	Oxides of nitrogen	Particulate
~~1994~~ 1995 to 1998	I	12.0	-	300	-	0.9 (2)
	II	10.0	-	300	-	0.9 (2)
	III (4)	-	220	600	4.0	-
	~~IV (4)~~	~~-~~	~~180~~	~~600~~	~~4.0~~	~~-~~
	V (4)	-	120	300	4.0	-
1999 and subsequent	I, II	3.2	-	100	-	0.25 (3)
	III, IV, V (4)	-	50	130	4.0	0.25 (3)

(1) "Class I" means utility and lawn and garden equipment engines less than 225 cc in displacement.
"Class II" means utility and lawn and garden equipment engines greater than or equal to 225 cc in displacement.
"Class III" means hand held utility and lawn and garden equipment engines less than 20 cc in displacement.
"Class IV" means hand held utility and lawn and garden equipment engines 20 cc to less than 50 cc in displacement.
"Class V" means hand held utility and lawn and garden equipment engines greater than or equal to 50 cc in displacement.

(2) Applicable to diesel engines only.

(3) Applicable to all diesel and all two-stroke engines only.

(4) These standards may be used for engines that meet the requirements of (i) and (ii) below, and for two-stroke snow throwers.

(i) The engine must be used in a hand held piece of equipment. To be classified as a hand held piece of equipment, the equipment must require its full weight to be supported by the operator in the performance of its requisite function.

(ii) The engine and equipment must require the capability of operating in any position to properly perform its design function.

(c) The test procedures for determining compliance with the standards for exhaust emissions from new utility and lawn and garden equipment engines sold in the state are set forth in "California Exhaust Emission Standards and Test Procedures for ~~1994~~ 1995 and Later Utility and Lawn and Garden Equipment Engines", adopted March 20, 1992, and amended _____.

(d) In ~~1994~~ 1995 and subsequent years, fire and police departments, and other entities which specialize in emergency response may purchase non-California certified emergency equipment only when equipment with a California-certified utility engine is not available. For purposes of this section, the purchase of non-California certified emergency equipment shall be requested by application to the Executive Officer.

(e) No new engines shall be produced for sale to replace pre-~~1994~~ 1995 model equipment after January 1, 1999, unless those engines comply with the ~~1994~~ 1995 model emission standards.

(f) Any new engine certified to comply with California emission standards and test procedures for on-road or other off-road applications may, upon approval by the Executive Officer be in compliance with these regulations.

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code. Reference: Sections 43013, Health and Safety Code

2404. Emission Control Labels - ~~1994~~ 1995 and Later Utility and Lawn and Garden Equipment Engines

(a) Purpose. The Air Resources Board recognizes that certain emissions-critical or emissions-related parts must be properly identified and maintained in order for engines to meet the applicable emission standards. The purpose of these specifications is to require engine manufacturers to affix a label (or labels) on each production engine (or equipment) to provide the engine or equipment owner and service mechanic with information necessary for the proper maintenance of these parts in customer use.

(b) Applicability.

(1) These specifications shall apply to ~~1994~~ 1995 and later utility and lawn and garden equipment engines, which have been certified to the applicable emission standards pursuant to Health and Safety Code Section 43013.

(2) Engine manufacturers who have certified such engines shall be responsible for complying with these specifications.

(c) Label Content and Location.

(1) A plastic or metal tune-up label shall be welded, riveted or otherwise permanently attached to an area on the engine in such a way that it will be readily visible to the average person after installation of the engine in the equipment. If the equipment obscures the label on the engine, the equipment manufacturer shall attach a supplemental label such that it is readily visible to the average person.

(2) In selecting an acceptable location, the manufacturer shall consider the possibility of accidental damage (e.g., possibility of tools or sharp instruments coming in contact with the label). Each label shall be affixed in such a manner that it cannot be removed without destroying or defacing the label, and shall not be affixed to any part which is likely to be replaced during the equipment's useful life. The label(s) shall not be affixed to any equipment which is easily detached from the engine.

(3) The label shall be in the English language and use block letters and numerals which shall be of a color that contrasts with the background of the label.

(4) The label shall contain the following information:

(A) The label heading shall read: "Important Engine Information."

(B) Full corporate name and trademark of the manufacturer.

(C) "This (specify equipment or engine, as applicable) is certified to operate on (specify operating fuel(s))."

(D) Identification of the Exhaust Emission Control System. Abbreviations may be used and shall conform to the nomenclature and abbreviations in Section 1977, Title 13, CCR, entitled "Diagnostic Acronyms, Terms, and Definitions for Electrical/Electronic Systems".

(E) For otto-cycle engines, the maintenance specifications and adjustments recommended by the manufacturer, including, if applicable: valve lash, ignition timing, idle air fuel mixture setting procedure and value (e.g., idle CO, idle speed drop), and high idle speed. For diesel engines, the specifications and adjustments recommended by the manufacturer, including, if applicable: initial injection timing, and fuel rate (in mm^3/stroke) at advertised horsepower. These specifications shall indicate the proper transmission position, (if applicable), during tune-up and what accessories, if any, should be in operation, and what systems, if any (e.g., vacuum advance, air pump), should be disconnected during the tune-up. If the manufacturer does recommend adjustment of foregoing specification, the manufacturer shall include in lieu of the "specifications" the single statement "No other adjustments needed." For all engines or equipment, the instructions for tune-up adjustments shall be sufficiently clear on the label to preclude the need for a mechanic or equipment owner to refer to another document in order to correctly perform the adjustments.

(F) Any specific fuel or engine lubricant requirements (e.g., lead content, research octane number, engine lubricant type).

(G) The date of engine manufacture (month and year).

(H) An unconditional statement of compliance with the appropriate calendar year California regulations; for example, "This engine conforms to ~~1994~~ 1995 California regulations for utility and lawn and garden equipment engines as applicable."

(I) Total engine displacement (in cubic centimeters) and engine family identification.

(5) If there is insufficient space on the engine to accommodate a label including all the information required in subsection (b) above, the manufacturer may delete or alter the label as indicated below. The information deleted from the label shall appear in the owner's manual.

(A) Exclude the information required in (4)(C), (D), and (F) from the label. The fuel or lubricant may be specified elsewhere on the equipment.

(B) Substitute the information required in (4)(E) with the statement "Refer to owner's manual for maintenance specifications and adjustments".

(C) Exclude the information required by subsection (4)(G) on the label, if the date the engine was manufactured is stamped on the engine.

(6) The manufacturer of any engine equipped with an emission control device which the Executive Officer has determined would be significantly impaired by the use of leaded gasoline shall:

(A) At the time of engine manufacture, affix a permanent legible label specifying the appropriate operating fuel(s) (for example, "Methanol Fuel or Unleaded Gasoline Only" for fuel-flexible equipment).

(B) The label shall be located immediately adjacent to each fuel tank filler inlet and outside of any filler inlet compartment. It shall be located so that it is readily visible to any person introducing fuel to such filler inlet; Provided, however, that the Executive Officer shall upon application from an engine manufacturer, approve other label locations that achieve the purpose of this paragraph. If the engine is manufactured separately from the equipment, the label shall be affixed to the engine and located so that it is readily visible. Such labels shall be in English and in block letters which shall be of a color that contrasts with their background.

(C) For purposes of this section, utility and lawn and garden equipment shall be deemed to be equipped with an emission control device which would be significantly impaired by the use of leaded gasoline if any alcohol fuel, unleaded gasoline, or a blend of these fuels were used in any testing relating to the emission certification of said equipment or engines installed therein.

(d) The provisions of these specifications shall not prevent a manufacturer from also stating on the label that such engine or equipment conforms to any applicable federal emission standards for new engines, or any other information that such manufacturer deems necessary for, or useful to, the proper operation and satisfactory maintenance of the equipment or engine.

(e) As used in these specifications, readily visible to the average person shall mean that the label shall be readable from a distance of eighteen inches (46 centimeters) without any obstructions from equipment or engine parts (including all manufacturer available optional equipment) except for flexible parts (e.g., vacuum hoses, ignition wires) that can be moved out of the way without disconnection. Alternatively, information required by these specifications to be printed on the label shall be no smaller than 8 point type size provided that no equipment or engine parts (including all manufacturer available optional equipment), except for flexible parts, obstruct the label.

(f) The labels and any adhesives used shall be designed to withstand, for the engine's or equipment's total expected life, typical equipment environmental conditions in the area where the label is attached. Typical

equipment environmental conditions shall include, but are not limited to, exposure to engine fuels, lubricants and coolants (e.g., gasoline, motor oil, water, ethylene glycol). The manufacturer shall submit, with its certification application, a statement attesting that its labels comply with these requirements.

(g) The manufacturer shall obtain approval from the Executive Officer for all label formats and locations prior to use. Approval of the specific maintenance settings is not required; however, the format for all such settings and tolerances, if any, is subject to review. If the Executive Officer finds that the information on the label is vague or subject to misinterpretation, or that the location does not comply with these specifications, he or she may require that the label or its location be modified accordingly.

(h) Samples of all actual production labels used within an engine family shall be submitted to the Executive Officer within thirty days after the start of production.

(i) The Executive Officer may approve alternate label locations or may, upon request, waive or modify the label content requirements provided that the intent of these specifications is met.

(j) The manufacturer of any engine shall furnish to the Executive Officer, at the beginning of the calendar year, any engine identification number coding system which identifies whether such engine(s) are covered by an Executive Order.

(k) If the Executive Officer finds any engine (or equipment) manufacturer using labels which are different from those approved or which do not substantially comply with the readability or durability requirements set forth in these specifications, the manufacturer shall be subject to being enjoined from any further sales of such products in the State of California pursuant to Section 43017 of the Health and Safety Code. Prior to seeking to enjoin a manufacturer, the Executive Officer shall consider any information provided by the manufacturer.

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code. Reference: Sections 43013, 43017, Health and Safety Code

Article 3. Emission Control System Warranty

2405. Defects Warranty Requirements for ~~1994~~ 1995 and Later Utility and Lawn and Garden Equipment Engines.

(a) Applicability. This section shall apply to ~~1994~~ 1995 and later utility and lawn and garden equipment engines. The warranty period shall begin on the date the engine or equipment is delivered to an ultimate purchaser.

(b) General Emissions Warranty Coverage. The manufacturer of each utility and lawn and garden equipment engine shall warrant to the ultimate purchaser and each subsequent purchaser that the engine is:

(1) Designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board pursuant to its authority in Chapters 1 and 2, Part 5, Division 26 of the Health and Safety Code; and

(2) Free from defects in materials and workmanship which cause the failure of a warranted part to be identical in all material respects to the part as described in the engine manufacturer's application for certification for a period of two years.

(c) The warranty on emissions-related parts shall be interpreted as follows:

(1) Any warranted part which is not scheduled for replacement as required maintenance in the written instructions required by Subsection (d) shall be warranted for the warranty period defined in Subsection (b)(2). If any such part fails during the period of warranty coverage, it shall be repaired or replaced by the engine manufacturer according to Subsection (4) below. Any such part repaired or replaced under the warranty shall be warranted for the remaining warranty period.

(2) Any warranted part which is scheduled only for regular inspection in the written instructions required by Subsection (d) shall be warranted for the warranty period defined in Subsection (b)(2). A statement in such written instructions to the effect of "repair or replace as necessary" shall not reduce the period of warranty coverage. Any such part repaired or replaced under warranty shall be warranted for the remaining warranty period.

(3) Any warranted part which is scheduled for replacement as required maintenance in the written instructions required by Subsection (d) shall be warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part shall be repaired or replaced by the engine manufacturer according to Subsection (4) below. Any such part repaired or

replaced under warranty shall be warranted for the remainder of the period prior to the first scheduled replacement point for the part.

(4) Repair or replacement of any warranted part under the warranty provisions of this article shall be performed at no charge to the owner at a warranty station.

(5) Notwithstanding the provisions of Subsection (4) above, warranty services or repairs shall be provided at all manufacturer distribution centers which are franchised to service the subject engines.

(6) The owner shall not be charged for diagnostic labor which leads to the determination that a warranted part is in fact defective, provided that such diagnostic work is performed at a warranty station.

(7) The engine manufacturer shall be liable for damages to other engine components proximately caused by a failure under warranty of any warranted part.

(8) Throughout the engine's warranty period defined in Subsection (b)(2), the engine manufacturer shall maintain a supply of warranted parts sufficient to meet the expected demand for such parts.

(9) Any replacement part may be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use shall not reduce the warranty obligations of the engine manufacturer.

(10) Add-on or modified parts may not be used. Such use shall be grounds for disallowing a warranty claim made in accordance with this article. The engine manufacturer shall not be liable under this article to warrant failures of warranted parts caused by the use of such an add-on or modified part.

(11) The Executive Officer may request and, in such case, the engine manufacturer shall provide, any documents which describe that manufacturer's warranty procedures or policies.

(d) Each manufacturer shall include a copy of the following emission warranty parts list with each new engine, using those portions of the list applicable to the engine.

(1) Fuel Metering System
    (i) Carburetor and internal parts (or fuel injection system).
    (ii) Air/fuel ratio feedback and control system.
    (iii) Cold start enrichment system.
(2) Air Induction System
    (i) Controlled hot air intake system.
    (ii) Intake manifold.
(3) Ignition System
    (i) Spark Plugs.

(ii) Magneto or electronic ignition system.
(iii) Spark advance/retard system.

(4) Exhaust Gas Recirculation (EGR) System
(i) EGR valve body, and carburetor spacer if applicable.
(ii) EGR rate feedback and control system.

(5) Air injection System
(i) Air pump or pulse valve.
(ii) Valves affecting distribution of flow.
(iii) Distribution manifold.

(6) Catalyst or Thermal Reactor System
(i) Catalytic converter.
(ii) Thermal reactor.
(iii) Exhaust manifold.

(7) Particulate Controls
(i) Traps, filters, precipitators, and any other device used to capture particulate emissions.

(8) Miscellaneous items Used in Above Systems
(i) Vacuum, temperature, and time sensitive valves and switches.
(ii) Electronic controls.
(iii) Hoses, belts, connectors, and assemblies.

(e) Each manufacturer shall furnish with each new engine written instructions for the maintenance and use of the engine by the owner. The instructions shall be consistent with this article and applicable regulations in Article 2 of this subchapter.

(f) Each manufacturer shall submit the documents required by Subsection (d) with the manufacturer's preliminary application for engine certification for approval by the Executive Officer. Approval by the Executive Officer of the documents required by Subsection (d) shall be a condition of certification. The Executive Officer shall approve or disapprove the documents required by Subsection (d) within 90 days of the date such documents are received from the manufacturer. Any disapproval shall be accompanied by a statement of the reasons thereof. In the event of disapproval, the manufacturer may file for an adjudicating hearing pursuant to Title 17, California Code of Regulation Section 60040 et seq. to review the decision of the Executive Officer.

(g) In the application, each manufacturer shall include a statement in regards to the maintenance of the engine for clean air. The statement shall include, but not be limited to, information on carburetor adjustment, air filter care and replacement schedule, spark plug maintenance and inspection, proper fuel/oil ratio for low emissions, use of no lead fuel, proper fueling and fuel mixing, proper method of disposing of oil and oil containers, engine maintenance, and a maintenance schedule to ensure that the owner returns to a servicing center to check for deposits, debris build-up, etc.

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code. Reference: Section 43013, Health and Safety Code.

2406. Emission Control System Warranty Statement.

(a) Each manufacturer shall furnish a copy of the following statement with each new ~~1994~~ 1995 and later utility and lawn and garden equipment engine, using those portions of the statement applicable to the engine.

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board (and manufacturer's name, optional) is pleased to explain the emission control system warranty on your (year) (utility or lawn and garden) equipment engine. In California, new utility and lawn and garden equipment engines must be designed, built and equipped to meet the State's stringent anti-smog standards. (Manufacturer's name) must warrant the emission control system on your (utility or lawn and garden) equipment engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your (utility or lawn and garden) equipment engine.

Your emission control system may include parts such as the carburetor or fuel-injection system, the ignition system, and catalytic converter. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, (manufacturer's name) will repair your (utility or lawn and garden) equipment engine at no cost to you including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE:

The ~~1994~~ 1995 and later utility and lawn and garden equipment engines are warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by (manufacturer's name).

OWNER'S WARRANTY RESPONSIBILITIES:

- As the (utility or lawn and garden) equipment engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. (manufacturer's name) recommends that you retain all receipts covering maintenance on your (utility or lawn and garden) equipment engine, but (manufacturer's name) cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

- As the (utility or lawn and garden) equipment engine owner, you should however be aware that (manufacturer's name) may deny you warranty coverage if your (utility or lawn and

garden) equipment engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

- You are responsible for presenting your (utility or lawn and garden) equipment engine to a (manufacturer's name) distribution center as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact (Insert chosen manufacturer's contact) at 1-XXX-XXXX.

(b) Commencing with the ~~1994~~ 1995 calendar year, each manufacturer shall furnish with each new engine a warranty statement which generally describes the obligations and rights of the engine manufacturer and owner under this article. Engine manufacturers shall also include in the warranty statement a phone number the consumer may use to obtain their nearest franchised service center.

(c) Each manufacturer shall submit the documents required by Subsections (a) and (b) with the manufacturer's preliminary application for new engine certification for approval by the Executive Officer. The Executive Officer may reject or require modification of the documents to the extent the submitted documents do not satisfy the requirements of Subsections (a) and (b). Approval by the Executive Officer of the ~~documents required by Subsections (a) and (b) shall be a condition of~~ certification. The Executive Officer shall approve or disapprove the documents required by Subsections (a) and (b) within 90 days of the date such documents are received from the manufacturer. Any disapproval shall be accompanied by a statement of the reasons therefore. In the event of disapproval, the manufacturer may petition the Board to review the decision of the Executive Officer.

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code. Reference: Section 43013, Health and Safety Code.

Article 4. Enforcement of Off-Road Vehicles and Engines Emission Standards

2407. New Engine Compliance and Quality-Audit Testing - New Utility and Lawn and Garden Equipment Engine Selection, Evaluation, and Enforcement Action.

(a) Compliance Test Procedures.

(1) The Executive Officer may, with respect to any new engine family or subgroup being sold, offered for sale, or manufactured for sale in California, order an engine manufacturer to make available for compliance testing and/or inspection a reasonable number of engines, and may direct that the engines be delivered to the state board at the Haagen-Smit Laboratory, 9528 Telstar Avenue, El Monte, California or where specified by the Executive Officer. The Executive Officer may also, with respect to any new engine family or subgroup being sold, offered for sale, or manufactured for sale in California, have a manufacturer compliance test and/or inspect a reasonable number of engines at the manufacturer's facility under the supervision of an ARB Enforcement Officer. Engines shall be selected at random from sources specified by the Executive Officer according to a method approved by him/her, which insofar as practical shall exclude engines which would result in an unreasonable disruption of the manufacturer's distribution system.

A subgroup may be selected for compliance testing only if the Executive Officer has reason to believe that the emissions characteristics of that subgroup are substantially in excess of the emissions of the engine family as a whole.

(2) For all ~~1994~~ 1995 and subsequent utility and lawn and garden equipment engines selected for compliance testing, the selection and testing of engines and the evaluation of data shall be made in accordance with the procedures set forth herein.

(3) These procedures are applicable, commencing with the ~~1994~~ 1995 calendar year, to any engine family or any subgroup within an engine family selected for compliance testing pursuant to this section.

(4) All testing shall be conducted in accordance with the applicable calendar year certification emission test procedures. Break-in before testing may be performed on test engines to the same extent it is performed on assembly-line quality audit testing engines (See subsection (b)). No break-in or modifications, adjustments, or special preparation or maintenance will be allowed on engines chosen for compliance testing without the written consent of the Executive Officer.

Such consent shall not be unreasonably withheld where such adjustment or alteration is required to render the engine testable and reasonably operative.

(5) If the manufacturer elects to specify a different break-in or adjustments, they will be performed by the manufacturer under the supervision of ARB personnel.

(6) Correction of damage or maladjustment which may reasonably be found to have resulted from shipment of the engine is permitted only after test of the engine, except where 100 percent of the manufacturer's production is given that inspection or maintenance by the manufacturer's own personnel. The manufacturer may request that the engine be repaired from shipping damage, and be retested. If the Executive Officer concurs, the engine may be retested, and the original test results may be replaced by the after-repair test results.

(7) Engines shall be randomly chosen from the selected engine family or subgroup. Each chosen engine shall be tested according to the "California Exhaust Emission Standards and Test Procedures for ~~1994~~ 1995 and Later Utility and Lawn and Garden Equipment Engines" ("Emission Standards and Test Procedures"), adopted March 20, 1992, and amended _____, to determine its emissions. Unique specialty hardware and personnel normally necessary to prepare the engine for the performance of the test as set forth in the Procedures shall be supplied by the manufacturer within seven days after request. Failure to supply this unique specialty hardware ~~or personnel may not be used by the manufacturer as a cause for~~ invalidation of the subsequent tests.

(8) Engines shall be tested in groups of five until a "Pass" or Fail" decision is reached for each pollutant independently for the engine family or subgroup in accordance with the following table:

Number of Engines Tested	Decide "Fail" If "U" is greater than or equal to	Decide "Pass" If "U" is less than or equal to
5	2.18	-0.13
10	2.11	0.51
15	2.18	0.88
20	2.29	1.16

where:

$$U = \frac{\sum_{i=1}^{n} (x_i - \mu_o)}{\left(\sum_{i=1}^{n} (x_i - \mu_o)^2\right)^{0.5}}$$

x_i = the projected emissions of one pollutant for the ith engine tested.

μ_o = the applicable calendar year emission standard for that pollutant.

n = the number of engines tested.

(9) The Executive Officer shall find that a group of engines has failed the compliance testing pursuant to the above table if he or she finds that the average emissions of the engines within the selected engine family or subgroup exceed the applicable calendar year new engine emission standard for at least one pollutant.

(10) If no decision can be reached after 20 engines have been tested, the Executive Officer shall not make a "Fail" decision for the selected engine family or subgroup on the basis of these 20 tests alone. Under these circumstances the Executive Officer shall elect to test 10 additional engines. If the average emissions from the 30 engines tested exceed any one of the exhaust emission standards for which a "Pass" decision has not been previously made, the Executive Officer shall render a "Fail" decision.

(11) If the Executive Officer determines, in accordance with the procedures set forth in subsection (a) that an engine family, or any subgroup within an engine family exceeds the emission standards for one or more pollutants, the manufacturer shall be subject to being enjoined from any further sales of such products in the State of California pursuant to

Section 43017 of the Health and Safety Code. Prior to seeking to enjoin a manufacturer, the Executive Officer shall consider quality audit test results, if any, and any additional test data or other information provided by the manufacturers.

(12) Engines selected for inspection shall be checked to verify the presence of those emissions-related components specified in the manufacturer's application for certification, and for the accuracy of any adjustments, part numbers and labels specified in that application. If any engine selected for inspection fails to conform to any applicable law in Part 5 (commencing with Section 43000) of Division 26 of the Health and Safety Code, or any regulation adopted by the state board pursuant thereto, other than an emissions standard applied to new engines to determine "certification" as specified in Chapter 9, the Executive Officer shall notify the manufacturer and may seek to enjoin the manufacturer from any further sales of such products in the State of California pursuant to Section 43017 of the Health and Safety Code. Prior to seeking to enjoin a manufacturer, the Executive Officer shall consider any information provided by the manufacturer.

(b) Quality-Audit Test Procedures

(1) Beginning with the engines produced in the ~~1995~~ 1996 calendar year, utility and lawn and garden equipment engines certified for sale in California, shall be subject to the Quality-Audit requirements specified herein. Each manufacturer shall use the quality-audit test ~~procedures as specified herein unless it can satisfactorily provide an~~ alternate method which shows an equivalent assurance of compliance. The purpose of providing alternate sampling, testing methods, and procedures is to help reduce sample size and testing costs, while providing a reasonable assurance that production engines comply with the applicable emission standards. Prior to production, the manufacturer shall submit to the Executive Officer the method of quality-audit testing for approval.

(2) These procedures specify the quality-audit test procedures in conjunction with the Emission Standards and Test Procedures, adopted March 20, 1992, and amended _____. An engine is in compliance with these quality-audit standards and test procedures only when all portions of these quality-audit test procedures and specified requirements from the Emission Standards and Test Procedures are fulfilled.

(3) Air Resources Board (ARB) personnel and mobile laboratories shall have access to engine or equipment assembly plants, distribution facilities, and test facilities for the purpose of engine selection,

testing, and observation. Scheduling of access shall be arranged with the designated manufacturer's representative and shall not unreasonably disturb normal operations (See section 31 of the Emission Standards and Test Procedures).

(4) Engine Sample Selection

(A) The engine manufacturer shall randomly select one percent of the engines from each engine family for quality-audit testing. The engines shall be representative of the manufacturer's California sales. Each selected engine for quality-audit testing must pass the inspection test, by being equipped with the appropriate emission control systems certified by the ARB. The procedure for randomly selecting engines or units of equipment must be submitted to the Chief, Mobile Source Division, 9528 Telstar Avenue, El Monte, CA, 91731, prior to the start of production for the ~~1995~~ 1996 calendar year.

(B) If a manufacturer cannot provide actual California sales data, it shall provide its total production and an estimate of California sales. The manufacturer shall also provide supporting material for its estimate.

(C) The Executive Officer may, upon notice to the manufacturer, require the sample rate to be increased to a maximum of ten percent of production (not to exceed 30 additional engines or units of equipment) of the calendar quarterly production of any engine family.

(5) Engine Preparation and Preconditioning

(A) No emissions tests may be performed on an engine or equipment prior to the first quality-audit test.

(B) The engine or unit of equipment shall be tested after the manufacturer's recommended break-in period. The manufacturer shall submit to the Executive Officer the schedule for hours of use accumulation or engine run-in and any changes to the schedule with each quarterly report. This schedule must be adhered to for all quality-audit testing within an engine family and subgroup or engine family and assembly plant as appropriate.

(C) If an engine or unit of equipment is shipped to a remote facility for quality-audit testing, and adjustment or repair is necessary because of such shipment, the manufacturer shall perform the necessary adjustments or repairs only after the initial test of the engine or equipment. Manufacturers shall report to the Executive Officer in the quarterly report, all adjustments or repairs performed on engines or equipment prior to each test. In the event a retest is performed, application may be made to the Executive Officer, within ten days of the production quarter, for permission to substitute the after-repair test results for the original test results. The Executive Officer will either affirm or deny the application when requested by the manufacturer within ten working days from receipt of the request.

(D) If a manufacturer determines that the emission test results of an engine or unit of equipment are invalid, the engine or equipment must be retested. Emission results from all tests shall be reported. The manufacturer shall include a detailed report on the reasons for each invalidated test in the quarterly report.

(6) Standards and Test Procedures. The emission standards and the exhaust sampling and analytical procedures shall be those described in the Emission Standards and Test Procedures, which shall be applicable to engines or equipment tested for exhaust emissions only.

(7) Quality-Audit Engine Selection Criteria

(A) Engines or equipment shall be randomly selected at a rate of 1.0 percent of engine family production at the beginning of production. When test results of the first 10 engines or units of equipment have been accumulated, an evaluation as indicated below shall be made.

(B) Calculate the family mean and standard deviation of each pollutant (HC, CO, NOx and PM, if applicable). Identify engines or units of equipment which have emission levels greater than three standard deviations above the mean. Eliminate these emission data points and recalculate the mean and standard deviation. Continue the calculation until there are no values greater than three standard deviations above the mean. Count the number of these data points greater than the standard (outliers). If the number of outliers is equal to or less than the allowable number in Table 1 for each pollutant, the engine family is eligible to continue to a second evaluation, shown in paragraph (C) below. Otherwise, sampling must continue at a rate of 1.0 percent of production for the rest of the month.

(C) If the allowable outlier criterion is met, the family mean standard deviation, and sample size determined for each contaminant before excluding any outliers, are substituted in the following expression:

$$\frac{(\text{emission standard} - \text{mean})\ (\sqrt{N})}{(\text{standard deviation})}$$

(D) If the expression is greater than C in Table 2 below, and the manufacturer reasonably estimates that the quarterly engine family production will exceed 5,000 engines or units of equipment, the sampling rate for the remaining portion of the calendar month following the date of selection of the last of the 10 engines or equipment shall be 10 per month, applied on a prorated basis. If the expression is greater than C in Table

2 below, and the manufacturer reasonably estimates that the quarterly engine family production will be 5,000 engines or units of equipment or less, the sampling rate for the remaining portion of the calendar month following the date of selection of the last of the 10 engines or equipment shall be 5 per month, applied on a prorated basis. If the expression is equal to or less than C in Table 2, the sampling rate shall continue to be 1.0 percent of production for the remaining portion of the month in which selection of the 10 engines or equipment is completed. The value of C is a function of the coefficient of variation (standard deviation/mean). The coefficient of variation and "C" shall be rounded to the number of decimal places shown in Table 2.

Table 1

Sample Size	Allowable Outliers	Sample Size	Allowable Outliers
1- 32	1	430-478	11
33- 68	2	479-528	12
69-107	3	529-578	13
108-149	4	579-629	14
150-193	5	630-680	15
194-238	6	681-731	16
239-285	7	732-783	17
286-332	8	784-835	18
333-380	9	836-887	19
381-429	10	888-939	20

Table 2

Coefficient of Variation	C
0.1	0.5
0.2	1.2
0.3	1.8
0.4	2.5
0.5	3.1
0.6	3.8
0.7	4.4
0.8	5.1
0.9	5.7

(E) For each remaining calendar month in the quarter, both mathematical procedures set forth in paragraphs b and c shall be repeated at the end of the preceding month, using all of the test data accumulated in the quarter. The sampling rate for each remaining calendar month shall be 10 engines or units of equipment per month, or 1.0 percent of the production as determined under the standards in paragraph (C).

(F) At the end of the quarter, all of the data accumulated during the quarter are evaluated, and the compliance of the engine family with the emission standards is determined.

(G) For each subsequent quarter, the preceding sample selection method shall be followed. The sample rate determination for the first month of each subsequent quarter shall be based on the accumulated data from the previous quarter. The sample rate for the succeeding months of the quarter shall be determined as previously set forth.

(H) If the start of production does not coincide with the first of a quarter, the sequence for sample rate determination shall be followed, but references to remaining calendar months may not be appropriate.

(I) Where a manufacturer has sampled engines or equipment at a rate of 5 per month following a reasonable estimate that the quarterly engine family production will be 5,000 engines or units of equipment or less, and subsequently determines, or reasonably should determine based on information available to the manufacturer, that the quarterly engine family production will exceed 5,000 engines or units of equipment, the manufacturer shall increase the sampling rate for the quarter such that the requirements of paragraph (C) applicable to families reasonably estimated to exceed a quarterly production of 5,000 engines or units of equipment are satisfied.

(8) REPORTS

(A) Each engine or equipment manufacturer shall submit a report to the ARB within 45 calendar days of the end of each calendar quarter and of the calendar year. Each engine or equipment manufacturer shall review the test results of the first 10 test engines or equipment of each engine family, from each calendar quarter of production or from the start of production. It shall also review the quarter's cumulative test results of each engine family at the end of each month. If 10 or more engines or units of equipment have been tested, the manufacturer shall notify the Chief of the Mobile Source Division, in writing within ten working days whenever an engine family exceeds an emission standard.

(B) The quarterly report shall include the following:

(i) The total production and sample size for each engine family.

(ii) A description of each test engine or equipment (i.e., date of test, engine family, engine size, engine or equipment identification number, fuel system, dynamometer power absorber setting in horsepower, engine code or calibration number, and test location).

(iii) The exhaust emission data for PM, CO, NOx and HC for each test engine or equipment. The data reported shall be rounded to

one significant figure beyond the number of significant figures in the applicable standard as follows for all engines or equipment:

HC	CO	NOx	PM
.XX	.X	.XX	.XXX

(iv) The retest emissions data, as described in paragraph (iii) above for any engine or unit of equipment failing the initial test, and description of the corrective measures taken, including specific components replaced or adjusted.

(v) A statistical analysis of the quality-audit test results for each engine family stating:

1. Number of engines or units of equipment tested.

2. Average emissions and standard deviations of the sample for HC, CO, NOx and PM.

(vi) Every aborted test data and reason for the aborted test.

(vii) The final report shall include the date of the end of the manufacturer's calendar year for each engine family.

(viii) If the engine or equipment from different calendar years are produced in any production quarter, separate reports shall be submitted for each calendar year.

(9) When a specified percentage of assembly-line engines exceed an emission standard of or when data submitted by the manufacturer indicates that assembly-line quality-audit testing is being improperly performed, the manufacturer shall be subject to being enjoined from any further sales of such products in the State of California pursuant to Section 43017 of the Health and Safety Code. Prior to seeking to enjoin a manufacturer, the Executive Officer shall consider any information provided by the manufacturer.

NOTE: Authority cited: Sections 39600 and 39601, Health and Safety Code. Reference: Section 43013, 43017, Health and Safety Code.

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CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES
FOR ~~1994~~ 1995 AND LATER
UTILITY AND LAWN AND GARDEN EQUIPMENT ENGINES

I. Emission Regulations for ~~1994~~ 1995 and Later New Lawn and Garden and Utility Equipment Engines, General Provisions.

1. General Applicability.

(a) These provisions shall be applicable to utility and lawn and garden engines produced on or after January 1, ~~1994~~ 1995.

(b) Every new utility and lawn and garden equipment engine that is manufactured for sale, sold, offered for sale, introduced or delivered for introduction into commerce, or imported into California which is subject to any of the standards prescribed in these provisions is required to be covered by an Executive Order issued pursuant to these provisions.

2. Definitions.

"ARB Enforcement Officer" means any officer or employee of the Air Resources Board so designated in writing by the Administrator (or by his designee).

"Executive Order" means an order issued by the Executive Officer certifying engines for sale in California.

"Class". see Section 9.

"Crankcase Emissions" means airborne substances emitted into the atmosphere from any portion of the engine crankcase ventilation or lubrication system.

"Displacement", and Displacement Class". see Section 16.

"Emission Control System" includes any component, group of components, or engine modification which controls or causes the reduction of substances emitted from an engine.

"Engine Family" means the basic classification unit of a manufacturer's engines used for the purpose of test fleet selection and determined in accordance with Section 17.

"Engine-Displacement-System Combination" means an engine family-displacement-emission control system combination.

"Exhaust Emissions" means substances emitted to the atmosphere from any opening downstream from the exhaust port of an off-highway vehicle.

(ii) The need for the device is justified in terms of protecting the utility and lawn and garden equipment engine against damage or accident, or

(iii) The device does not go beyond the requirements of engine starting or warm-up.

7. [Reserved].

8. Replacement Engines.

No new engines shall be produced for sale to replace pre - ~~1994~~ 1995 model equipment after January 1, 1999, unless those engines comply with the ~~1994~~ 1995 model emission standards.

9. Exhaust Emission Standards For ~~1994~~ 1995 and Later Utility and Lawn and Garden Engines.

(a) This section shall be applicable to utility and lawn and garden engines produced on or after January 1, ~~1994~~ 1995.

(b) Exhaust emissions from new utility and lawn and garden equipment engines, sold in this state, shall not exceed:

Exhaust Emission Standards
(grams per brake horsepower-hour)

Calendar Year	Engine Class (1)	Hydro-carbon plus oxides of nitrogen	Hydro-carbon	Carbon monoxide	Oxides of nitrogen	Particulate
~~1994~~ 1995 to 1998	I	12.0	-	300	-	0.9 (2)
	II	10.0	-	300	-	0.9 (2)
	III (4)	-	220	600	4.0	-
	IV (4)	-	180	600	4.0	-
	V (4)	-	120	300	4.0	-
1999 and subsequent	I, II	3.2	-	100	-	0.25 (3)
	III, IV, V (4)	-	50	130	4.0	0.25 (3)

(1) "Class I" means utility and lawn and garden equipment engines less than 225 cc in displacement.
"Class II" means utility and lawn and garden equipment engines greater than or equal to 225 cc in displacement.

"Class III" means hand held utility and lawn and garden equipment engines less than 20 cc in displacement.
"Class IV" means hand held utility and lawn and garden equipment engines 20 cc to less than 50 cc in displacement.
"Class V" means hand held utility and lawn and garden equipment engines greater than or equal to 50 cc in displacement.

(2) Applicable to diesel engines only.

(3) Applicable to all diesel and all two-stroke engines only.

(4) These standards may be used for engines that meet the requirements of (i) and (ii) below, and for two-stroke snow throwers.

(i) The engine must be used in a hand held piece of equipment. To be classified as a hand held piece of equipment, the equipment must require its full weight to be supported by the operator in the performance of its requisite function.

(ii) The engine and equipment must require multi-positional characteristics for use (e.g. it must be capable of operating in any position, upside down, or sideways as required to complete the job).

(c) In ~~1994~~ 1995 and subsequent years, fire and police departments, and other entities which specialize in emergency response may purchase non-California certified emergency equipment only when equipment with a California-certified utility engine is not available. For purposes of this section, purchase of non-California certified emergency equipment shall be requested by application to the Executive Officer.

10. Maintenance and Warranty Instructions.

(a) Maintenance and warranty instructions shall conform with the requirements pursuant to Sections 2405 and 2406, Title 13, California Code of Regulations.

11. Labeling.

(a) Labeling required pursuant to Section 2404, Title 13 of the California Code of Regulations shall conform with the requirements specified therein.

12. Submission of Engine Identification Number.

(a) The manufacturer of any utility and lawn and garden equipment engine covered by a Executive Order shall furnish to the Executive Officer, at the beginning of each calendar year, an engine identification number